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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,882

11/16/2005

Stevens Michael Brumbley

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EXAMINER

KALLIS, RUSSELL

ART UNIT

PAPER NUMBER

1638

MAIL DATE

DELIVERY MODE

05/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,882	Applicant(s) BRUMBLEY ET AL.	
	Examiner RUSSELL KALLIS	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/11/2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1638

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of claims 1-12, and SEQ ID NO: 1, 4, 7, 19, 28 and 31 in the reply filed on 2/15/2008 is acknowledged. Claim 8 has been canceled.

Claims 1-7 and 9-18 are pending and examined.

Drawings

Figure 16 appears to be a very poor reproduction of a photograph that will not be acceptable for publication.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16-18 recite "The genetically modified *Saccharum* sp cells which further comprise", there is no antecedent basis for either "The genetically modified *Saccharum*" or "further comprises". The claims do not recite any dependency to any other claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1638

Claims 1-3, 5-7, and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,091,002 Asrar *et al.* issued July 18, 2000.

The claims are drawn to methods of making polyhydroxybutyrate in a *Saccharum* plant transformed with polynucleotide sequence that hybridize to the genes encoding the polyhydroxybutyrate pathway from *R. eutropha* or *A. eutrophus* i.e. keto-thiolase (i.e. phbABC) and plants thereof.

Asrar teaches in claims 1-4 and 12 of the '002 Patent, a method of making transformed plants that produce polyhydroxybutyrate using the polyhydroxybutyrate pathway from *R. eutropha* or *A. eutrophus* (i.e. a nucleic acid molecule encoding a beta-ketoacyl reductase, a nucleic acid molecule encoding a beta-ketothiolase, and a nucleic acid molecule encoding a polyhydroxyalkanoate synthase that are from *Alcaligenes eutrophus*; see claim 2 of '002 Patent) which are the instantly claimed SEQ ID NO: 1, 4 and 7; and thus the reference teaches all the limitations of Claims 1-3, 5-7 and 9-13.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7 and 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,091,002 Asrar *et al.* issued July 18, 2000 in view of U.S. Patent 6,475,734 filed September 28, 2000.

The claims are drawn to methods of making polyhydroxybutyrate in a *Saccharum* plant transformed with polynucleotide sequence that hybridize to the genes encoding the

Art Unit: 1638

polyhydroxybutyrate pathway from *R. eutropha* or *A. eutrophus* i.e. keto-thiolase (i.e. phbABC) SEQ ID NO: 1, 4 and 7 of the instant claims; that further comprise a polynucleotide that hybridizes to a polynucleotide sequence of either SEQ ID NO: 28 (a PhaG gene from *Pseudomonas Putida*), SEQ ID NO: 31 (a phaJ gene from *A. caviae*); or SEQ ID NO: 19 (a PhaC1 gene from *Pseudomonas Aeruginosa*); and plants thereof.

Asrar teaches in claims 1-4 and 12 of the '002 Patent, a method of making transformed plants that produce polyhydroxybutyrate using the polyhydroxybutyrate pathway from *R. eutropha* or *A. eutrophus* (i.e. a nucleic acid molecule encoding a beta-ketoacyl reductase, a nucleic acid molecule encoding a beta-ketothiolase, and a nucleic acid molecule encoding a polyhydroxyalkanoate synthase that are from *Alcaligenes eutrophus*; see claim 2 of '002 Patent) which are the instantly claimed SEQ ID NO: 1, 4 and 7.

Asrar does not teach sugarcane plants that further comprise a polynucleotide that hybridizes to a polynucleotide sequence of either SEQ ID NO: 28 (a PhaG gene from *Pseudomonas Putida*), SEQ ID NO: 31 (a phaJ gene from *A. caviae*); or SEQ ID NO: 19 (a PhaC1 gene from *Pseudomonas Aeruginosa*) or methods thereof.

The '734 Patent teaches plants (including sugarcane in Col. 19 lines 21-23) that are further engineered with a polynucleotide that hybridizes to a polynucleotide sequence of either SEQ ID NO: 28 (a PhaG gene from *Pseudomonas Putida*), SEQ ID NO: 31 (a phaJ gene from *A. caviae*); or SEQ ID NO: 19 (a PhaC1 gene from *Pseudomonas Aeruginosa*); and plants thereof, that produce polyhydroxyalkanoate including polyhydroxybutyrate.

Art Unit: 1638

It would have been obvious to further engineer the sugarcane of Asrar to incorporate the sequences taught by the '734 Patent. One of ordinary skill would have been motivated by the teachings of Asrar that production of polyhydroxybutyrate in plants was an efficient way to produce bioplastic and by the teachings of the '734 Patent that connections to fatty acid biosynthesis could be engineered to redirect metabolites to polyhydroxyalkanoate production in crop plant species and that one would have a reasonable expectation of success of transforming plants and manipulating the biochemical pathways of plants because the techniques for transforming plants such as sugarcane were known and the polynucleotide sequence that would hybridize to SEQ I DNO: 31, 28 or 19 were known in that art and their activities identified for their usefulness in genetic engineering plants to produce biopolymer in plants.

No claim is allowed.

Art Unit: 1638

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RUSSELL KALLIS whose telephone number is (571)272-0798. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Russell Kallis/
Primary Examiner, Art Unit 1638
May 23, 2008